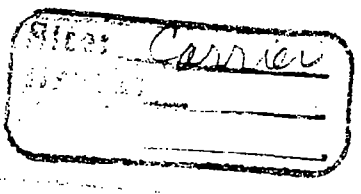

MEMORANDUM

Subject: Review of Draft Baseline Risk Assessment (Revision B)
Carrier Air Conditioning Site
Collierville, Tennessee

From: Glenn Adams, Toxicologist
Ground-Water Technology Support Unit

To: Beth Brown, Remedial Project Manager
North Superfund Remedial Branch

Thru: Rutherford B. Hayes, Chief
Ground-Water Technology Support Unit

I have reviewed the second draft Baseline Risk Assessment (BRA) for the Carrier Air Conditioning site as per your request. My specific comments are as follows:

Table 8-1 (page 189)

The chemical dibromochloromethane (DBCM) has been misspelled.

Section 8.4 (page 201)

The first paragraph states that "the trans-1,2-dichloroethylene (DCE) isomer is considered more toxic" than the cis-1,2-DCE isomer. This statement is incorrect. The reference dose (RfD) for cis-1,2-DCE is 0.01 mg/kg/day while the RfD for trans-1,2-DCE is 0.02 mg/kg/day.

Table 8-8 (page 202)

This table discusses the potential complete exposure pathways at the Carrier site. As stated in my earlier comments (8/7/91), the data used in calculating the risk from the ground-water pathway should use the concentrations before air-stripping, not after. The concentrations before the air-stripping are representative of the true risks from the contaminated ground water. It can be stated that the ground water entering the public water supply (PWS) is going through an air-stripper before entering the distribution system and the risks after treatment may also be provided, but the risks prior to treatment should be included in the BRA.

The treatment system is considered an institutional control and should not be considered in the BRA.

Table 8-9 (page 204)

In Section 7.4 of RAGS (Risk Assessment Guidance for Superfund) it is stated that EPA's Intergrated Risk Information System (IRIS) and Health Effects Assessment Summary Tables (HEAST) should be used first for determining cancer slope factors (CSF) and reference doses (RfD). Only if values are not available in IRIS or HEAST should other sources be used. The following corrections/changes should be made to this table and these values should be used in re-calculating any affected risk calculations:

Chemical	CSF (/mg/kg/day)	RfD (mg/kg/day)	Source
DCE		0.01	HEAST
DCA	0.091		IRIS
PCE	0.051		HEAST

The action level for lead in ground water (15 ug/l) should be used to calculate the RfD used in this BRA assuming a 70-kg adult consumes 2 liters of water per day. A verified RfD is not available for lead at this time.

Also, the ARAR listed for DCE should be listed as the MCL for cis-1,2-DCE.

Table 8-10 (page 206)

This table should be changed to incorporate the changes in Table 8-9.

This table provides the upper bound sum of the cancer risks, but it should also provide the sum of the hazard indices.

The exposure frequency should be provided in footnote "b". Also, the hazard index in footnote "b" should be 1 not ten.

Table 8-11 (page 208)

This table should be changed to incorporate the changes in Table 8-9.

The footnote for lead and zinc should be "e" not "d". Footnote "d" should be used for PCE.

The sum of the hazard indices should be provided.

Figure 8-2 (page 209)

As stated in earlier comments (8/7/91), the footnote states that the oral and dermal doses are additive. This is true when the dermal dose has been adjusted to an intake dose, but intake doses are not additive with absorbed doses. Appendix A of RAGS should be consulted for guidance in these adjustments.

Table 8-12 (page 212)

This table should be changed to incorporate the changes in Table 8-9.

Figure 8-3 (page 213)

The terminology "portion of absorbed contaminant absorbed" is unclear. Dermal absorption rate might be a more clarifying term.

Section 8.8 (page 218)

The third sentence in the last paragraph should be changed to state that a hazard index greater than one (1) is considered an unacceptable risk not ten (10).

Appendix P

Certain portions of this appendix (the hand written pages) are not clearly legible. These areas should be more clearly written or typed.

If you have any questions, please call me at x3866.

Attachment

ADAMS_____

File No. 31.440
Carrier3.Doc.